clearwater LIGHTS™

Installation Manual

BMW K1600GT with CANopener

Krista / Erica LED Light Kit

Dimmable

Patent Pending

Made in USA

Parts List

Please be sure to read our instructions thoroughly before attempting installation.

- Check Parts list below with your kit to be sure all parts are handy. If something is missing please call us at (916) 852-7029.

Please take the time to review the included instructions. Installation of the new Clearwater Lights is straightforward, but be sure to follow some of the suggestions to keep the installation safe and reliable. If you have any questions or comments please feel free to contact us.

Thank you!

Summary of Installation

1. Open body panels
2. Mount the lights and brackets.
3. Disassamble the side panel.
4. Remove fuse from Clearwater Lights wiring harness
5. Mount the wiring harness to a secure location.
6. Connect the CANopener
7. Connect the lights and CANopener to their corresponding plugs on the wiring harness.
8. Secure wires, making sure they won't get caught in the suspension or steering column.
9. Attach power lines to battery and replace the fuse.

IMPORTANT THINGS TO REMEMBER!

The engine needs to be running for lights to work

Brake light not to exceed 1AMP

Abbreviations

TSC = Turn Signal Cancel

WW = WonderWheel (BMW multifunction controller)

FTP = Flash To Pass

OBL = Optional Brake Light

Summary of CANopener features and operation

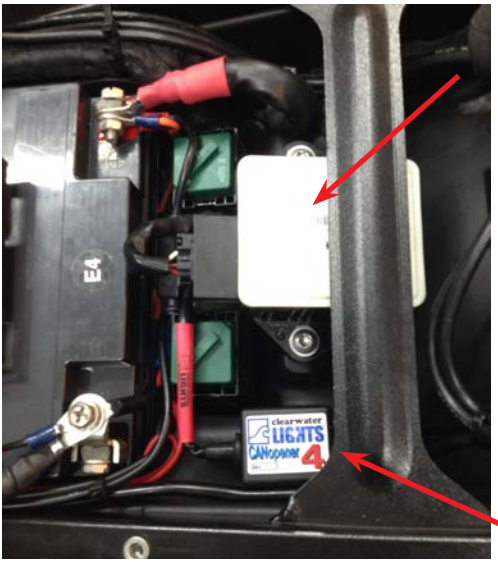
TSC = Turn Signal Cancel **WW** = WonderWheel (BMW multifunction controller)

FTP = Flash To Pass **OBL** = Optional Brake Light

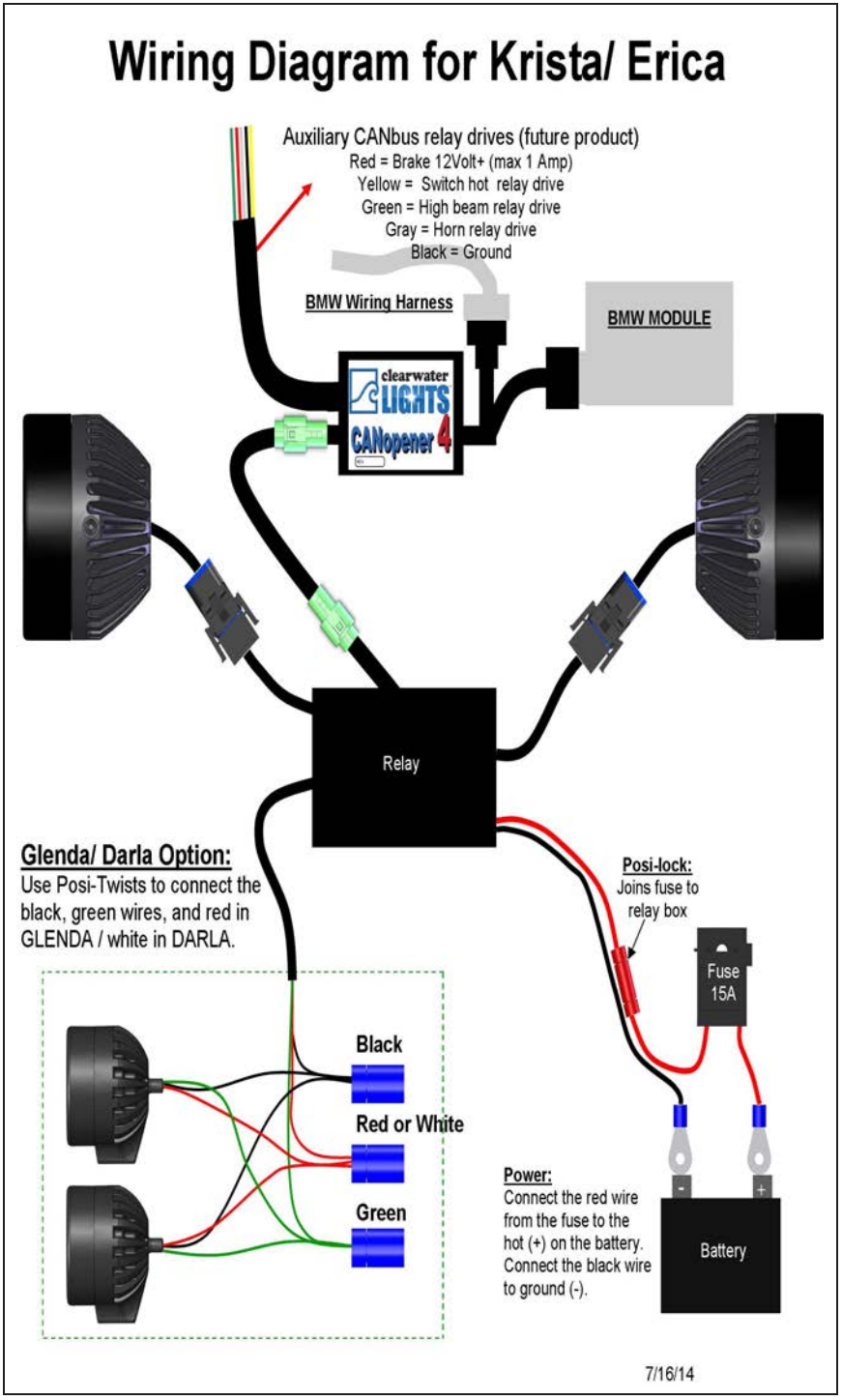
Function	Command	Modes
Darla/ Glenda dimmer	Press(TSC), then hold control wheel left for 2 seconds and rotate to adjust	Rotate WonderWheel to select 10 brightness levels (10% to 100%) To adjust brightness on High Beam Mode, turn on high beam first Dimmer control will cancel after 2 seconds or by pressing TSC
Erica/Krista dimmer	Press(TSC), then hold control wheel right for 2 seconds and rotate to adjust	
Erica/Krista on/off	Hold TSC for 2 seconds	Mode 1 – on and dimmable (default) Mode 2 – off
High Beam Mode	Hold brake lever and press FTP 3 times to toggle	Mode 1 – all lights on 100% with high beam or FTP, Erica/Krista must be turned on Mode 2 – Erica/Krista off with low beam, all lights on 100% with high beam or FTP (default)
Horn Activation Mode	Hold brake lever and press TSC 3 times to toggle	Mode 1 – horn does not affect lights (default) Mode 2 – horn activates lights 100% Mode 3 – horn strobes lights
Hazard Flasher Alert Mode	Hold hazard switch and press brake lever 3 times to toggle	Mode 1 – no flash (default) Mode 2 – lights flash while holding hazard switch
Clearwater Brake Light (optional)	While stationary, press brake lever or pedal 5 times within 5 seconds to toggle	Mode 1 – off (default) Mode 2 – functions identically to BMW brake light Mode 3 – California legal strobe on brake activation (4Hz flash) Mode 4 – speed sensitive (flashes faster and brighter with harder braking)
Reset Default Settings	Hold left turn signal and press FTP 6 times within 6 seconds	Reset all functions to the default settings above

Mouting CANopener

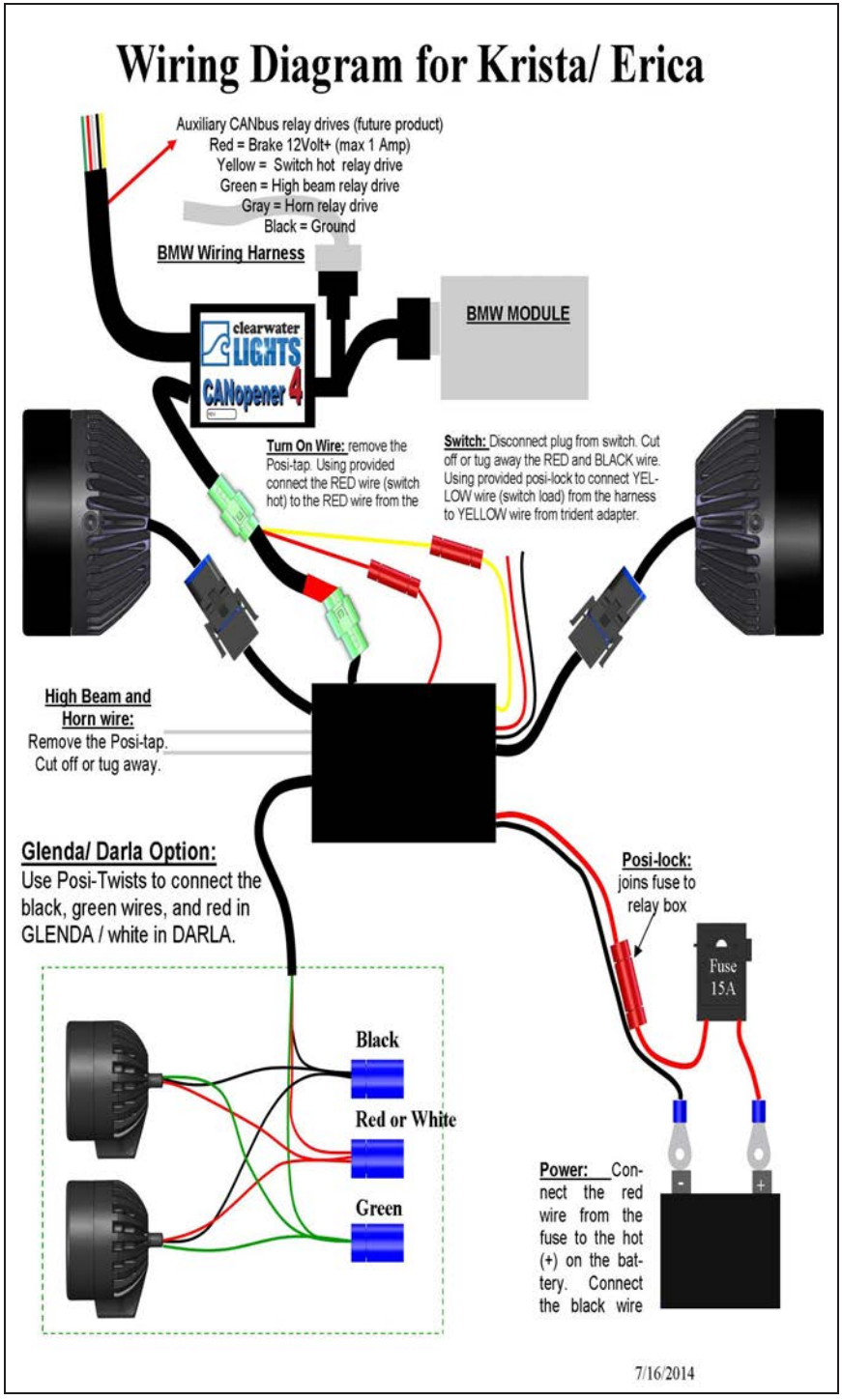
- Remove the seat from the bike and set aside.
- Locate the module under the seat, unplug the wiring harness from it and plug your Clearwater CANopener in it's place. Then plug the wiring harness into the CANopener.
- Secure the CANopener to the plastic inner fender with provided Velcro strip. Be sure to clean any dirt or dust from area before affixing the CANopener.
- DO NOT mount the CANopener on top or touch the module.



Wiring Diagram "New Install"

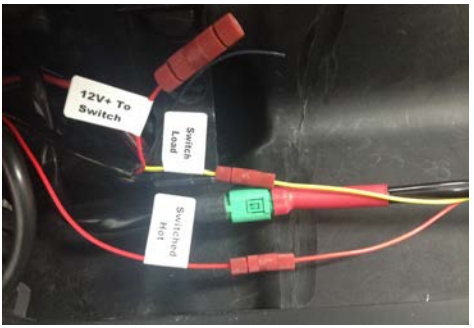

Wiring Diagram for Krista/ Erica
Auxiliary CANbus relay drives (future product)
Red = Brake 12Volt+ (max 1 Amp)
Yellow = Switch hot relay drive
Green = High beam relay drive
Gray = Horn relay drive
Black = Ground
BMW Wiring Harness
BMW MODULE
clearwater LIGHTS
CANopener 4
Relay
Glenda/ Darla Option:
Use Posi-Twists to connect the black, green wires, and red in GLENDA / white in DARLA.
Black
Red or White
Green
Posi-lock:
Joins fuse to relay box
Fuse 15A
Power:
Connect the red wire from the fuse to the hot (+) on the battery. Connect the black wire to ground (-).
Battery
7/16/14

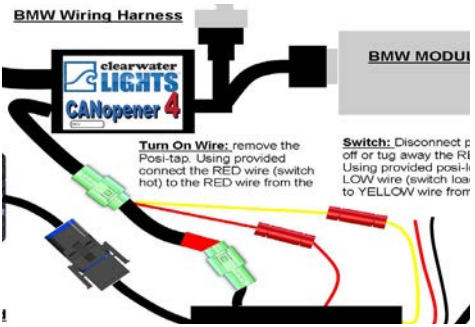
Wiring Diagram “Retro-Fit”


Wiring Diagram for Krista/ Erica
Auxiliary CANbus relay drives (future product)
Red = Brake 12Volt+ (max 1 Amp)
Yellow = Switch hot relay drive
Green = High beam relay drive
Gray = Horn relay drive
Black = Ground
BMW Wiring Harness
BMW MODULE
clearwater LIGHTS CANopener 4
Turn On Wire: remove the Posi-tap. Using provided connect the RED wire (switch hot) to the RED wire from the
Switch: Disconnect plug from switch. Cut off or tug away the RED and BLACK wire. Using provided posi-lock to connect YELLOW wire (switch load) from the harness to YELLOW wire from trident adapter.
High Beam and Horn wire:
Remove the Posi-tap. Cut off or tug away.
Glenda/ Darla Option:
Use Posi-Twists to connect the black, green wires, and red in GLENDA / white in DARLA.
Black
Red or White
Green
Posi-lock: joins fuse to relay box
Fuse 15A
Power: Connect the red wire from the fuse to the hot (+) on the battery. Connect the black wire
7/16/2014

Retrofit Wiring

- Remove the fuse from fuse holder.
- Disconnect the connectors from the switch.
- Remove the Posi-tap from low beam wire.
- Remove the Posi-tap from high beam wire. Tug away or cut off.
- Remove the Posi-tap from horn wire. Tug away or cut off.
- Remove Dimmer Pot from the harness.
- Plug the trident adapter to the appropriated place. Green connector with RED shrinktub plug to the harness, green connector with BLACK shrink tube plug to the data cable.
- Using provided Posi-lock to connect the RED wire (switched hot) from the harness to the RED wire from the trident adapter.
- Using provided Posi-lock to connect the YELLOW wire (switch load) from the harness to the YELLOW wire from the trident adapter.




BMW Wiring Harness
clearwater LIGHTS
CANopener 4
BMW MODU
Turn On Wire: remove the Posi-tap. Using provided connect the RED wire (switch hot) to the RED wire from the
Switch: Disconnect
off or tug away the R
Using provided posi-
LOW wire (switch loa
to YELLOW wire from

Bike Preparation:

- First, park the motorcycle on hard pavement or concrete to insure the bike will be stable during the installation. If you can mount the bike on a stand with tie-down straps, this will help secure the motorcycle.
- Follow the manufacturers guidelines for disconnecting the battery. This is important to prevent damage to the electrical system.

Krista / Erica Technical:

- Krista and Erica are very bright LED auxiliary light. Do not use these with on coming traffic unless the dimmer is turned down all the way. Krista and Erica are designed as an off road only light due to it's light output and beam pattern. The wide circular pattern is very useful in mountain roads on a motorcycle as it keeps light on the road and in the tree canopy. As the bike leans, light is still focused on the road. Be certain to use the lights in a manner that does not blind oncoming traffic.
- By using a proprietary digital volume control, we can "dim" the lights via a remote mount volume control. This rotary knob sends a digital signal to our microprocessor that changes the pulses of electricity to the LED's. As we increase the time that the lights are "off" the human eye perceives this as dimming. We switch our lights on and off at a rate of 250 times per second, every second. Increased efficiency occurs with the dimming as well.
- Krista and Erica can also be used in a "low" beam mode and a "high" beam mode. The factory handlebar high beam switch is used to select the two different LED modes. Krista and Erica are easy to install and have many, many uses.

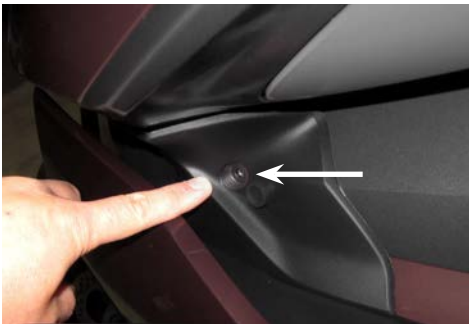
Step 1: Disassembly

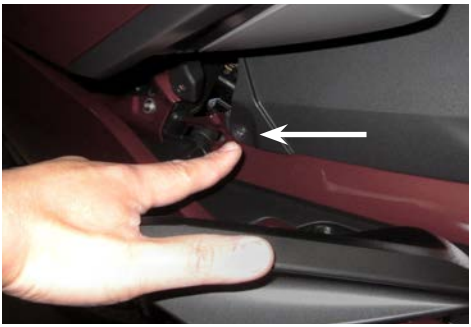
Windshield:

Remove the 4 bolts securing the windshield.

Gas Tank Shroud:

In order to remove the gas tank shroud plastics you must flip the plastic back as shown to get to the bolts. Follow images continued on the next page.

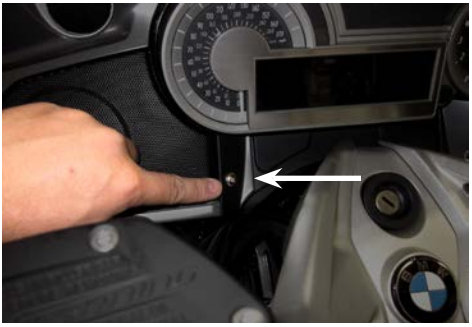


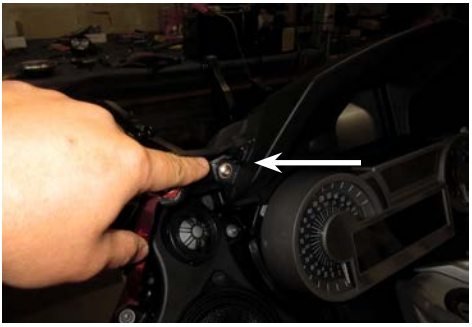


Step 1: Disassembly

Dashboard:

Remove the 2 bolts holding the speaker covers. In order to get the shroud above the navigation unit off, you must remove the windshield mount. To do this remove the bolts and clips as shown. This allows you to remove the black plastic shroud above the speedometer and navigation unit.

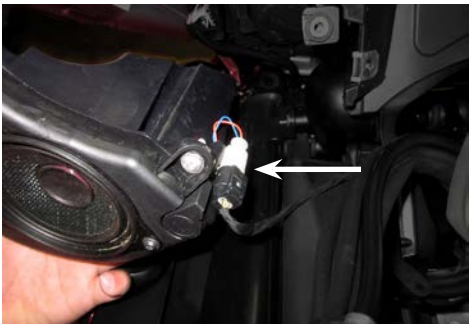




Speakers:

Remove the 3 bolts holding the speakers in place and unplug the connector on the back.

Repeat process for both sides.



Step 1: Disassembly

Gas tank shroud removal continued.

Your bike should look like this after removing one side of gas tank shroud plastics. Repeat the above steps for the other side and we're ready to move on.

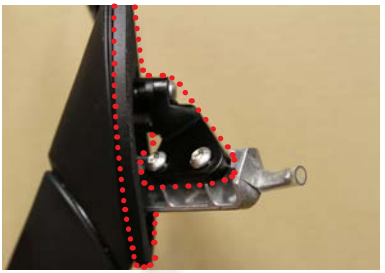
Step 2: Mounting The Lights

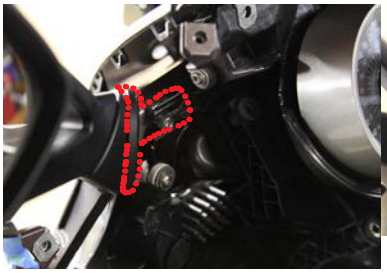
Helpful Hint:

1. Be patient.
2. Take your time.
3. An assistant will be helpful (you will find yourself looking for a third hand).
4. Cut the zip-tie holding the antenna cable to allow cable slack.
5. Lay a towel on the body to protect from scratches.
6. Flex the fairing open to make it easier to install the mirror mount.
7. Adjust the mirror mount and fairing alternately during install of mirror mount.
8. Loosely mount the mirror before tightening fairing screws.

Mirror Mount Overview:

- To install the Krista / Erica using the supplied mirror mount, remove the mirrors on your bike. Do one at a time to be able to look at the attached mirror for reference when assembling. Once the mirror is off, place the intended bracket on the bike using the bolts from the mirror to tighten the bracket in place. Once the brackets are in place, assemble each Krista / Erica light to its separate bracket with supplied hardware. Finally, replace the BMW mirror bolts with the new supplied **M6x20** bolts and attach the Krista light and bracket to the mirror mount that you just installed. Make your last adjustments to align the lights where you want them and make one last check to see that the bolts are tightened properly.

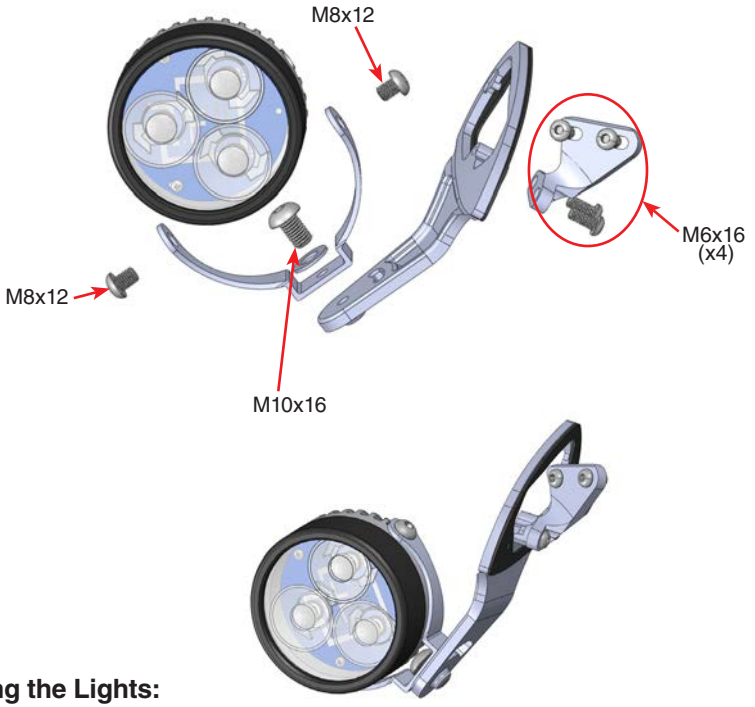




Note: Pictures above are without the fairing attached. Photos for illustration purposes only.

Step 2: Mounting The Lights

Under Mirror Mount:



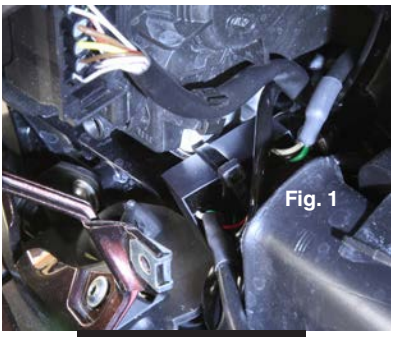
Aligning the Lights:

Erica and Krista are designed as auxiliary lights, adjustment is up to the user depending on his needs. Ask an assistant to help you with this procedure. Make sure the bike is on level ground and have your assistant sit on the bike. With a right angle board or object, position the board on the floor and slide it up to the light. The goal is to adjust the lights so that the light is level with the ground. Passengers and luggage may alter the alignment of the light so further adjustments may be needed. Often times it is helpful to angle the right side light toward the right side of the road. This helps with identifying road terrain, potential critters, and road hazards.

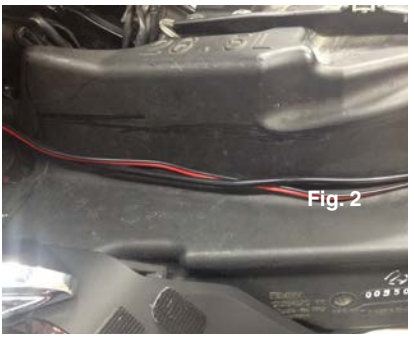
Step 3: Wiring

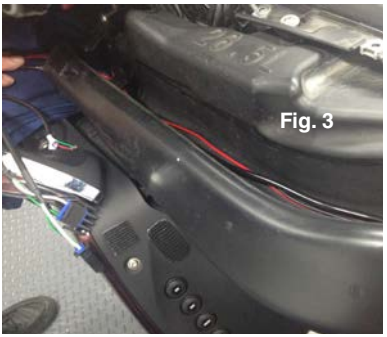
Wire Routing:

- Be sure to route wires so that they cannot become tangled or caught in either a suspension part or steering part. Check movement of both steering and suspension before riding the bike.
- Locate the power relay box in a safe location where it is show in Fig. 1 Secure with a zip tie. It is a good idea to face the relay box with the wires coming out the bottom. This helps keep everything dry. (Fig. 1)
- Route the two black connectors for the lights to a convenient location where they will not interfere with steering or any other moving parts.
- Run the RED and BLACK power wire, and Data Cable along the air intake up to the battery. (Fig. 2) and (Fig. 3)
- The BLACK power wire with the ring terminal goes to the negative (-) side of the battery. The RED power wire with the inline fuse holder goes to the positive (+) side of the battery. Remove the fuse while wiring the lights to prevent any accidental shorts.
- Plug the Data Cable into the CANopener.



Harness Box Location





Clearwater CANopener operation and features

Summary of features

1. **Clearwater Lights dimming feature**
   - Independent dimming of two sets of Clearwater lights using BMW WonderWheel (handlebar mounted rotary dimmer included for non-WonderWheel bikes)
   - Brightness adjustable in 10 steps from 10-100%
2. **Automatic Dimmer**
   - Programmable Clearwater lights dimmer setting compensates automatically using the bike's photocell
   - Factory preset and programmable dimmers for day, night, and high beam illumination
3. **On/off function for Erica/Krista lights**
   - No separate switch required, uses factory turn signal cancel button
4. **Horn Activation Mode**
   - Clearwater lights programmable to illuminate or strobe with horn button (off road use only)
5. **Hazard Flasher Alert Mode**
   - Clearwater lights programmable to strobe when holding the hazard flasher button (off road use only)
6. **High Beam Mode**
   - Clearwater Erica/Krista lights programmable to activate with high beam or flash-to-pass button
7. **Clearwater Brake Light Module (optional)**
   - Programmable LED brake module includes California-legal strobe mode and speed sensitive mode
8. **Auxiliary CANbus relay drives**
   - Auxiliary turn on (1/4 amp maximum) - **YELLOW** wire
   - Auxiliary horn (1/4 amp maximum) - **GRAY** wire
   - Auxiliary high beam relay drive (1/4 amp maximum) - **GREEN** wire

   WARNING: Do not connect auxiliary accessories without a relay!
9. **Factory Default Reset**
   - Reset all functions to the default settings

Clearwater CANopener operation and features

DIMMING CONTROL (WonderWheel equipped bikes)

Two modulated brightness channels are adjustable using the WonderWheel:

- Each channel is programmable for ten brightness settings (10-100%) in three different modes (day, night, and high beam). Settings are stored in non-volatile memory, and will be remembered when restarting the bike or disconnecting the battery. The dimmer is programmed at the factory for the most useful day/night settings.
- To enter dimmer program, you now must first press the Turn Signal Cancel (TSC) switch once before tilting the Wonderwheel Left or Right for dimming. Press the WonderWheel to the LEFT for two seconds to engage the Darla/Glenda channel dimmer, or press it to the RIGHT for two seconds to engage the Erica/Krista channel dimmer. The lights being adjusted will flash twice to confirm programming mode. Adjust the output by rotating the WonderWheel.
- While adjusting the brightness mode, the second set of lights (if installed) will automatically dim to their lowest setting in order to easily observe the adjustment.
- Exit programming mode either by waiting for approximately two seconds or pressing the turn signal cancel button. The lights will flash once to confirm.
- Remember that each set of lights is adjustable for day, night and high beam. Day and night settings are automatically selected by the ambient light level reaching the bike's photocell. To adjust the night dimmer, simply cover the photocell at the top right corner of the dash display using your hand or a piece of tape. Activate the high beam to adjust the high beam setting.

WARNING: When configuring the dimmer, be sure that the WonderWheel is not making adjustments to other functions of the onboard systems. Turn off the entertainment system to prevent volume adjustment or unwanted channel changes, and select the home screen on the GPS.

DIMMING CONTROL (non-WonderWheel bikes)

If the motorcycle does not have the GPS Prep Package (WonderWheel), your light kit will come equipped with a handlebar mounted analog/digital encoder knob for dimming control. Separate day and night settings and the dual intensity dimmer will not be available.

ON/OFF FUNCTION FOR ERICA/KRISTA

The Erica/Krista lights can be manually deactivated. Toggle these modes by holding the turn signal cancel button for two seconds.

- Mode 1 – on and dimmable (default)
- Mode 2 – off

Clearwater CANopener operation and features

HORN ACTIVATION MODE

The Clearwater lights can be programmed for three different modes when the horn button is pressed. Toggle these modes by holding the brake lever and pressing the Turn Signal Cancel button three times. The brake and Clearwater lights flash to indicate the mode selected:

- Mode 1 – horn does not affect lights (default)
- Mode 2 – horn activates lights 100%
- Mode 3 – horn strobes lights (if two sets of Clearwater lights are installed, they will alternate flashing)

WARNING: The use of strobe mode may not be legal on public highways. Check your local regulations. This mode is intended for parades and escorts under certain conditions.

HAZARD FLASHER ALERT MODE

The Clearwater lights can be programmed to strobe when the hazard flasher button on the left grip is held down. Toggle these modes by holding down the hazard flasher button and pressing the brake lever three times:

- Mode 1 – OFF, no flash with emergency flasher button (default)
- Mode 2 – strobe with emergency flasher button held down (if two sets of Clearwater lights are installed, they will alternate flashing)

NOTE: Pressing the hazard flasher button activates the turn signal flashers. Cancel the flashers with another short press of the button.

WARNING: The use of strobe mode may not be legal on public highways. Check your local regulations. This mode is intended for parades and escorts under certain conditions.

HIGH BEAM MODE

The Erica/Krista lights can be programmed for two modes of operation in conjunction with high beams. Toggle these modes by holding the brake lever and pressing flash-to-pass three times:

- Mode 1 – all Clearwater lights turn on 100% when high beam or flash-to-pass is pressed. Erica/Krista use the day/night dimmed setting on low beam. Erica/Krista lights must be turned on. (default on ver 1.5 or greater)
- Mode 2 – HIGH BEAM ACTIVATION. All Clearwater lights turn on 100% when high beam or flash-to-pass is pressed. Erica/Krista are turned off with low beam. Erica/Kristas do NOT need to be turned on. (default on ver 1.6 or greater)

Clearwater CANopener operation and features

CLEARWATER BRAKE LIGHT MODULE (OPTIONAL)

A 1 AMP driver is provided for the optional Clearwater auxiliary brake light license plate frame. There are four modes available. Toggle these modes by pressing the brake lever or pedal five times while the bike is stationary. The engine may be on or off. The brake lights will flash one, two, three or four times to indicate the mode selected.

- Mode 1 – off (default).
- Mode 2 – functions identically to BMW brake light, no flash.
- Mode 3 – California legal strobe on brake activation (4Hz flash), then continuous on as long as the brake is held.
- Mode 4 – speed sensitive mode. Bike speed and braking data is used to modulate the flash rate.

NOTE: The auxiliary brake light is configured as an “always on” running light at a reduced light level. When either the front or rear brake is activated, it activates at 100% brightness. All flashing light modes are deactivated below 5mph.

AUXILIARY CANBUS RELAY DRIVES

- Auxiliary turn on (1/4 amp maximum) Useful for turning on aux fuse boxes or a PDM-60.
- Auxiliary horn (1/4 amp maximum) Useful for adding and aux air horn. MUST use relay.
- Auxiliary high beam relay drive (1/4 amp maximum) Useful for adding an aux high beam.

WARNING: Do not connect auxiliary accessories without a relay!

FACTORY DEFAULT RESET

To reset the CANopener to the factory settings, hold the left turn signal switch and press the flash-to-pass button six times within six seconds. All factory preset dimmer levels and modes will be selected. A successful reset is indicated by five flashes of the Clearwater lights.

Thank you for purchasing your Clearwater lights. We hope this product will help make you a safer rider. Please feel free to send us comments or suggestions at any time. We learn from you. Visit our website for more exciting products to help you see better at night.

Ride safe!

Sincerely,

Glenn and the team at Clearwater.

The Clearwater Company
11305 Sunrise Gold Cr. Unit D | Rancho Cordova, CA 95742
Phone: (916) 852-7029 | Fax: (916) 852-9410 | www.clearwaterlights.com
Version 1.7 | 08/11/14